

CLAIMS

1. A method for open circuit voltage regulation for an electronic ballast comprising:
 - providing a regulating pulse width modulator having an output voltage threshold limit 250;
 - sensing output voltage from the electronic ballast to generate a sensed output voltage signal 252;
 - comparing the sensed output voltage signal to the output voltage threshold limit 254; and
 - limiting the output voltage when the sensed output voltage signal exceeds the output voltage threshold limit 256.
2. The method of claim 1 wherein the limiting the output voltage when the sensed output voltage signal exceeds the output voltage threshold limit 256 comprises limiting pulse width from the regulating pulse width modulator.
3. The method of claim 1 wherein the sensing output voltage from the electronic ballast to generate a sensed output voltage signal 252 comprises sensing tank current.
4. The method of claim 3 wherein the sensing tank current comprises sensing voltage across a resistance between a resonant capacitor and a common rail.
5. The method of claim 1 wherein the sensing output voltage from the electronic ballast to generate a sensed output voltage signal 252 comprises sensing output voltage directly.

6. A system for open circuit voltage regulation for an electronic ballast comprising:
 - means for modulating pulse width having an output voltage threshold limit;
 - means for sensing output voltage from the electronic ballast to generate a sensed output voltage signal;
 - means for comparing the sensed output voltage signal to the output voltage threshold limit; and
 - means for limiting the output voltage when the sensed output voltage signal exceeds the output voltage threshold limit.
7. The system of claim 6 wherein the means for limiting the output voltage when the sensed output voltage signal exceeds the output voltage threshold limit comprises means for limiting pulse width from the pulse width modulating means.
8. The system of claim 6 wherein the means for sensing output voltage from the electronic ballast to generate a sensed output voltage signal comprises means for sensing tank current.
9. The system of claim 8 wherein the means for sensing tank current comprises means for sensing voltage across a resistance between a resonant capacitor and a common rail.
10. The system of claim 6 wherein the means for sensing output voltage from the electronic ballast to generate a sensed output voltage signal comprises means for sensing output voltage directly.

11. An open circuit voltage regulation circuit for an electronic ballast comprising:
an filament current sensing circuit 224 operably connected to an output of the electronic ballast and generating a sensed output voltage signal; and
a regulating pulse width modulator U3 receiving the sensed output voltage signal and operably connected to control voltage at the output of the electronic ballast, the regulating pulse width modulator U3 having an output voltage threshold limit;
wherein the regulating pulse width modulator U3 limits the voltage at the output of the electronic ballast when the sensed output voltage signal exceeds the output voltage threshold limit.
12. The circuit of claim 10 wherein the regulating pulse width modulator U3 limits the voltage at the output of the electronic ballast by limiting pulse width.
13. The circuit of claim 10 wherein filament current sensing circuit 224 is responsive to tank current.
14. The circuit of claim 10 further comprising a tank circuit operably connected to the output of the electronic ballast and having a resonant capacitor, and the filament current sensing circuit 224 comprises a resistance between the resonant capacitor and a common rail.
15. The circuit of claim 14 wherein the regulating pulse width modulator U3 has a set trip level for the output voltage threshold limit and the resistance is sized so that the sensed output voltage signal exceeds the set trip level when the electronic ballast has an open circuit.
16. The circuit of claim 10 further comprising a high voltage driver U4 operably connected to be driven by the regulating pulse width modulator U3, and the regulating pulse width modulator U3 limits the voltage at the output of the electronic ballast by driving the high voltage driver U4 at a limited pulse width.

17. The circuit of claim 10 further comprising a tank circuit operably connected to the output of the electronic ballast and having a resonant capacitor, and the filament current sensing circuit 224 is operably connected between the resonant capacitor and a common rail.

18. The circuit of claim 17 wherein the filament current sensing circuit 224 is selected from the group consisting of a resistive voltage divider, a voltage stepdown transformer, and a current transformer.